

## CLAIMS

1. A method for amplifying a signal comprising the steps of:
  - (a) decomposing a signal into a plurality of near-constant envelope signals;
  - (b) producing a plurality of control signals, each control signal corresponding to the magnitude of a respective near-constant envelope signal;
  - (c) amplifying each near-constant envelope signal in inverse proportion to its corresponding control signal;
  - (d) combining the plurality of inversely amplified near-constant envelope signals to produce an amplified output signal.
2. The method of claim 1 wherein decomposing the signal is accomplished through LINC signal decomposition.
3. The method of claim 1 wherein combining the signals is accomplished using a Chireix style amplitude combiner.
4. The method of claim 1 wherein combining the signals is accomplished using a conventional power combiner.
5. The method of claim 1 wherein step (c) is accomplished through the use of a variable-gain amplifier.
6. A system for amplifying a signal comprising:
  - a means for decomposing a signal into a plurality of near-constant envelope signals;
  - a means for measuring the amplitude of each near-constant envelope signal to obtain a plurality of respective control signals;
  - a plurality of variable amplification means for each near-constant envelope signal;
  - a means for combining signals;wherein the bias of each variable amplification means is adjusted to amplify each near-constant envelope signal in inverse proportion to its respective control signal to produce a corresponding amplified constant envelope signal; and

wherein the combining means combines the plurality of amplified constant envelope signals.

7. The system of claim 6 wherein the decomposing means is LINC signal decomposition.
8. The system of claim 6 wherein the combining means is a Chireix style amplitude combiner.
9. The system of claim 6 wherein the combining means is a conventional power combiner.
10. A device for amplifying a signal comprising:
  - a signal decomposer;
  - a plurality of amplified envelope detectors;
  - a plurality of adjustable gain amplifiers;
  - a combiner;
  - wherein the signal decomposer fragments a signal into a plurality of near-constant envelope signals,
  - wherein each amplified envelope detector produces a control signal corresponding to a respective near-constant envelope signal,
  - wherein the gain of each adjustable gain amplifier is controlled by a respective control signal,
  - wherein each adjustable gain amplifier amplifies a respective near-constant envelope signal with gain inversely proportionate to its respective control signal, thereby producing an amplified constant envelope signal;
  - wherein the combiner combines the plurality of amplified constant envelope signals.
11. The device of claim 10 wherein the signal decomposer is a LINC signal decomposer.
12. The device of claim 10 wherein the combiner is a Chireix style amplitude combiner.
13. The device of claim 10 wherein the combiner is a conventional power combiner.
14. A method for producing an amplified signal, comprising the steps of:
  - decomposing a signal into a plurality of near-constant envelope signals;

obtaining a first control signal proportionate to the envelope of a first near-constant envelope signal;

inputting the first near-constant envelope signal into a first adjustable gain amplifier;

obtaining a second control signal proportionate to the envelope of a second near-constant envelope signal;

inputting the second near-constant envelope signal into a second adjustable gain amplifier;

adjusting the bias of the each adjustable gain amplifier using a respective control signal, thereby producing a plurality of amplified constant envelope signals;

combining the plurality of amplified constant envelope signals.

15. The method of claim 14 wherein decomposing the signal is accomplished through LINC signal decomposition.
16. The method of claim 14 wherein combining the signals is accomplished using a Chireix style amplitude combiner.
17. The method of claim 14 wherein combining the signals is accomplished using a conventional power combiner.
18. A device for amplifying a signal comprising:
  - a signal decomposer having an input terminal and a plurality of output terminals;
  - a plurality of adjustable gain amplifiers, each adjustable gain amplifier having an input terminal, a control terminal, and an output terminal, whereby its input terminal is in electrical communication with a respective output terminal of the signal decomposer;
  - a plurality of envelope detectors, each envelope detector having an input terminal and an output terminal, wherein its input terminal is in electrical communication with an output terminal of a respective adjustable gain amplifier;
  - a plurality of amplifiers, each amplifier having an input terminal in electrical communication with a respective envelope detector output terminal, and an output

terminal in electrical communication with the control terminal of the respective adjustable gain amplifier;

a combiner having a plurality of input terminals and an output terminal, wherein each input terminal is in electrical communication with the output terminal of a respective adjustable gain amplifier.

19. The device of claim 18 wherein the signal decomposer is a LINC signal decomposer.

20. The device of claim 18 wherein the combiner is a Chireix style amplitude combiner.

21. The device of claim 18 wherein the combiner is a conventional power combiner.

22. A device for amplifying a signal comprising:

a signal decomposer having an input terminal and a plurality of output terminals;

a plurality of envelope detectors, each envelope detector having an input terminal and an output terminal, wherein the input terminal of the envelope detector is in electrical communication with a respective output terminal of the signal decomposer;

a plurality of envelope signal amplifiers, each envelope signal amplifier having an input terminal and an output terminal, wherein its input terminal is in electrical communication with the output terminal of a respective envelope detector;

a plurality of adjustable gain amplifiers, each adjustable gain amplifier having an input terminal, a control terminal, and an output terminal, wherein its control terminal is in electrical communication with the output terminal of a respective envelope signal amplifier, and whereby its input terminal is in electrical communication with a respective output terminal of the signal decomposer;

a combiner having a plurality of input terminals and an output terminal, wherein each input terminal is in electrical communication with the output terminal of a respective adjustable gain amplifier.

23. The device of claim 22 wherein the signal decomposer is a LINC signal decomposer.

24. The device of claim 22 wherein the combiner is a Chireix style amplitude combiner.

25. The device of claim 22 wherein the combiner is a conventional power combiner.